Claims 52, 53 and 74 stand rejected under 35 U.S.C. §103 as being unpatentable over Moriarty in view of Pabon et al. Applicants respectfully traverse the rejection.

Claim 52 recites a gamma detector that includes "a radiation sensing element, wherein said radiation sensing element transforms radiation into light", "a light receiving element, wherein said light receiving element transforms light into electrical impulses", "a housing encasing said radiation sensing element and said light receiving element", and "at least one window in said housing for allowing radiation into the detector, wherein said window is formed of a material comprising polyether ether ketone" (emphasis added). Claims 53 and 74 depend from claim 52.

The Office action indicates that Moriarty discloses all the recited elements of claims 52, 53 and 74 except that the "window is formed of a material comprising polyether ether ketone". The Office action continues that such a feature is "only a matter of design choice since as shown by Pabon et al. it is well known to use windows made of PEEK on detector chambers used in logging and drilling assemblies".

As a threshold matter, applicants disagree that the use of polyether ether ketone as a material for a gamma detector window is merely a matter of design choice. The window for a gamma detector must pass certain criteria to be acceptable. Namely, a window for use with a gamma detector must have sufficient strength to withstand harsh physical environments. For gamma detectors used in the petroleum industry, the windows must be able to withstand high temperatures and harsh physical stress from being banged against tube walls and from sudden pressure changes. Gamma detectors used in the coal industry must be able to withstand intense

physical stress from the near constant bombardment of rock and other material thrown from the picks of the cutting tool. Further, windows used in gamma detectors must exhibit sufficient transmissibility to gamma rays. Prior to the present invention, the only materials known to pass both of these criteria are thin metal and beryllium. An undesirable aspect of thin metal for use as a window is its poor durability. Beryllium also has undesirable aspects, namely its great expense and also its toxicity. Until the applicants first used windows with polyether ether ketone, it was unknown that such windows would exhibit sufficient transmissibility to gamma rays to be useful as windows.

As to Pabon et al., while it is true that this reference does indeed show the use of a window formed of polyether ether ketone, the detector at issue in Pabon et al. is an acoustic sensor. Thus, the only possible teaching of Pabon et al. is that windows formed of polyether ether ketone have sufficient transmissibility for acoustic waves. There is no teaching or suggestion in Pabon et al. that a window formed of polyether ether ketone has sufficient transmissibility for gamma rays. Gamma rays are entirely different than acoustic waves and a material which is transmissible for one may not be transmissible for the other. Thus, there is no motivation or suggestion to one of ordinary skill in the art to combine the teachings of Pabon et al. with Moriarty.

Claims 54-69, 75-80 and 83-90 stand rejected under 35 U.S.C. §103 as being unpatentable over Moriarty and Pabon et al. and further in view of Frederick et al. Applicants respectfully traverse the rejection.

Claims 54-69, 75-80 and 83-90 depend from claim 52. The arguments provided above with regard to the rejection of claims 52, 53 and 74 are equally applicable here. Specifically, Frederick et al. adds nothing of substance to Moriarty and Pabon et al. regarding the use of a window formed of polyether ether ketone.

Claims 70-73 stand objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form. Claims 81 and 82 also have been held allowable if the §112, second paragraph rejection is overcome. Applicants submit, based at least upon the above arguments, that all of the pending claims, including claims 70-73, 81 and 82 are allowable. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

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